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ABSTRACT

It was hypothesized that student teachers supervised with telephone conferencing would be rated as well or better by their cooperating teachers than students supervised with personal meetings with their faculty advisor. It was also hypothesized that pupils who had been taught to read Landsat satellite maps by student teachers supervised by telephone conferencing would achieve as well as pupils taught by student teachers in personal contact with their supervisors. Resulting data appear to support these hypotheses. (JD)

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STUDENT TEACHER TELEPHONE CONFERENCING WITH SATELLITE MAPS AS A MONITORING DEVICE[1]

ED178469

This study is an exploratory one. It is an attempt to generate preliminary data with a limited sample of participants to determine the feasibility of further definitive research on the topic. In this case: to make an initial judgement whether or not student teachers can be supervised with telephone conferencing by their university faculty advisor.

INTRODUCTION

As faculty budgets are cut back, the employment of additional staff for supervising student teachers becomes more difficult. As well, the extended practicum of some jurisdictions such as the Province of Alberta, places additional demands on the time of faculty members. One possible way of coping with these problems would be to make more efficient use of faculty members' time. The use of telephone conferencing, then, may be one such way allowing faculty members to supervise larger numbers of student teachers from a central location, rather than spending time travelling to several locations with a limited number of students.

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ERRATA SHEET

P. 17 - Second paragraph, last word - "considerations"
Third line from bottom, third word from right - "nine"

P. 18 - First line, last word - "cooperating"

P. 20 - Third line, first word - "means"

P. 21 - Bottom line, last word - "result"

P. 22 - Last paragraph, second line - delete fourth word "an"
Last paragraph, third word - "conservative"

P. 23 - Last paragraph between sixth and seventh line - insert "supervision to be acceptable, whereas only one of nine would select telephone"

Present technology employed by Alberta Government Telephones allows any number of individual telephones to be joined into a conference. Thus, a faculty advisory may link his student teachers in a conference call at a mutually agreed to time. Both faculty member and students may even participate in a conference call from the privacy and comfort of their own homes, as was done in this study.

Technological improvements are presently being developed that may enable a central university switchboard to set up conference calls at a cost comparable to ordinary telephone calls.[2]

In addition to the study of the technical feasibility of the conferencing procedure was the examination of the progress of selected pupils of the student teachers as a dependent variable. This was done through the use of Landsat satellite infrared false color maps. The relative newness of this technology to both student teachers and their pupils lent itself to this comparative evaluative purpose.

Given the nature of the telephone conferencing and the use of the Landsat maps in this study, the following questions were raised:

1. How would student teachers monitored by their faculty consultant with telephone conferencing compare to another group of student teachers monitored by their faculty consultants in a face-to-face manner in regard to their evaluations by their cooperating teachers?
2. How would pupils taught about Landsat maps by student teachers monitored by their faculty consultant with telephone conferencing compare to another group of pupils taught about Landsat maps by student teachers monitored by their faculty consultant in a face-to-face manner?

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[2]Meeting for discussion and demonstration of conference telephone bridging device, Edmonton Telephones Headquarters, Edmonton, Alberta, May 19, 1978.

3. How would the student teachers in each group rate their experiences with the two modes of supervision?
4. What are some variables that influence telephone conferencing as a supervisory tool in student teaching?

RELATED LITERATURE

There appears to be no related literature specifically dealing with supervising student teachers using telephone conferencing in which a group of student teachers and their faculty advisor are on line at the same time.

Some reports of telephone conferencing deal with a telephone receiver hooked to a loud speaker (Stevenson, 1975). Another deals with conferencing lecture and discussion groups, but not with student teacher supervision. (Madden, 1967) In one case, telephone conferencing was used for supervising student teachers, but only with a single student, the faculty consultant, and the cooperating teacher at one time (Dalrymple, 1971). A doctoral dissertation dealing with remote supervision of student teachers also made use of this "triad" procedure on a single telephone line with the faculty consultant on one end, and the student teacher and cooperating teacher at the other end. In this study amplifying devices were used by the parties to allow two or more persons to hear or speak with the same receiver (Smith, 1969).

The University of Wisconsin, Tele-Universite, Quebec, and the Open University London, England, among others utilize telephone communications for instruction. Usually, groups of students assemble at central locations for telephone loudspeaker lectures with two way communication, at aforementioned institutions.

London also has one to one telephone tutorials and group conferences (Williams, 1975).

The San Diego Public Schools utilize group telephone assisted instruction for handicapped children. However, their procedure requires special installations at the students' homes (Carr, 1964). The technique developed for this project utilizes existing telephone lines and equipment in the students' homes without any modifications.

It may be noted that in 1975, there were over 30,000 students enrolled in telephone assisted courses at the University of Wisconsin, and the estimated cost per student per hour was $0.14 for the operation and production of the network, but not including additional costs of instructional materials (Daniel, 1975).

HYPOTHESES

It was hypothesized that student teachers supervised with telephone conferencing would be rated as well or better by their cooperating teachers than student teachers supervised with face-to-face meetings with their faculty advisor. And, that pupils who had been taught to read Landsat infra-red maps by student teachers supervised by telephone conferencing would be able to read such maps as well as or better than pupils taught this skill by student teachers supervised with face-to-face meetings with their faculty advisor.

STUDY DESIGN -- PROCEDURE

Two groups of student teachers were randomly selected. One group of students was assigned to the experimental group that would be supervised with telephone conferencing. The other group would be the control, supervised with face-to-face contact.

The project was designed to be run during both halves of the school year 1977-1978 with University of Alberta, Faculty of Education Practicum 201. This is an experience in which participants are expected to teach small groups of pupils. The following student teaching experience, Education Practicum 301 requires the student teacher to teach an entire class. The previous experience, Education Practicum 200 consists only of school visits and observations.

Education Practicum 201 usually consists of five consecutive weeks in which the student teacher is at his assigned school for two days per week. No grade is assigned since it is on a credit - no credit basis. However, the cooperating teachers submit an anecdotal evaluation of the students' work. Faculty advisors' roles consist mainly of orientation sessions for both students and cooperating teachers, following the students' progress during the practicum, and dealing with any problems that may arise.

Cooperating teachers for this project were those whose principals agreed to allow the project to be in their schools and who volunteered to participate.

Student teachers were randomly selected by the Division of Field Services of the Faculty of Education.

Two faculty consultants were hired specially for this project: one for each term of student teaching.

The use of Landsat satellite maps was decided upon in order to have some way to measure the achievement of the student teachers' pupils. The student teachers were required to teach selected pupils the skill of interpreting data from Landsat maps. These maps are in infra-red false color and have a scale of 1:1,000,000. They are produced by Landsat satellites in a near polar orbit, 900 km high, which produce images of almost all the earth's surface every eighteen days.

Since this technology is still relatively new, it was expected that neither cooperating teachers, student teachers nor their pupils had any background in it. This had the benefit of providing an area of examination in which all student teachers began on an equal footing, and making the student teachers more dependent upon their faculty advisor who had some background, and could advise them about teaching techniques. Thus, the role of the faculty advisor would also take on greater significance in this project.

Each student teacher was requested to teach three children, selected by the cooperating teacher, about Landsat infra-red maps for one hour per week each week. The three children selected were to be the three children with the highest reading scores in the class. The children were limited to grades four, five, and six, and were checked for visual problems. Previous research had shown that children as young as grade three were capable of dealing with infra-red Landsat maps (Kirman, 1977).

Edmonton Telephones had agreed to provide a turret device that allowed the faculty advisor to contact up to nine student teachers and bridge them into a conference call. Unfortunately, Edmonton Telephones was unable to eliminate a

defect in the system that caused volume problems. This required a switch to a different conferencing procedure used by Alberta Government Telephones in which at a predetermined time, an operator would ring up and bridge the participants into a conference call. This had the convenience of allowing the faculty consultants to participate from their own homes rather than having to return to the university to operate the previously mentioned turret device.

The student teachers were to meet on campus prior to their teaching round for approximately one hour, to be introduced to their faculty advisor, receive a brief training session on the use of Landsat infra-red false color maps in the elementary classroom, and a kit of materials. The materials consisted of a large envelope in which were two infra-red Landsat images of the Edmonton region, one with vegetation cover, one with snow cover; a spiral notebook to use as a log book; three china markers to allow the Landsat maps to be written upon; three data cards for information about the pupils that they were to teach; a road map of the Province of Alberta to use in conjunction with the Landsat images.

The students were to view a video tape on the use of the maps, receive the name of their cooperating teacher, the grade levels that they were to teach and the answers to any questions they had about the items discussed. Subject and control groups were scheduled to meet at different times, and were assigned to different schools.

TERM I

Due to a series of problems beyond the control of the researchers the student teachers were unable to meet for their orientation during the first term of student teaching. Second term Ss did participate in orientation sessions. Because of this it was decided to eliminate the Landsat element from that term 1, and concentrate instead on the technique of telephone conferencing.

In the first term of student teaching, the faculty advisor visited all participating students at their schools during the first week of the practicum. This was done since there had been no time for a pre-practicum meeting, and it was considered necessary that the students in the telephone group meet their faculty consultant. During the remaining four weeks, the faculty advisor visited the controls at their schools for group meetings and maintained contact with the subject group via telephone conferencing.

The faculty advisor for the first round was informed by Alberta Government Telephones that the first few telephone conferences would not elicit a spontaneous response from the participants as would later conference. This was purported to be due to the lack of familiarity of the participants with this technique. This actually was the case.

One subject dropped out of the practicum part of the way through. He had been doing poorly and had shown little interest as noted by the faculty consultant. The cooperating teacher of this student mentioned that the telephone contact might have been a factor in this student's dropping out. He felt that if the faculty consultant was in class she might have spotted some of his problems and helped to correct them.

The first round of telephone conferencing also showed that if the telephone group was assigned specific questions in advance, there was a greater response from them. In addition, other users of the telephone should be informed of its use, and the time closely watched by the faculty consultant so as not to tie up the telephone for more time than was originally planned.

TERM II

SUBJECTS

Nineteen student teachers in the Elementary route at the University of Alberta were utilized as subjects in the second term of the study. Ten of the nineteen subjects were randomly selected and allocated to telephone-conference supervision, and the remaining 9 were allocated to the control condition of face-to-face supervision.

Table 1 presents some of the relevant characteristics of the telephone and control groups. It will be noted that the sex ratio of 2 males and 7 females is identical for both groups. Also, the figures for mean number of years at university (3.6 controls; 3.7 telephones) and mean number of years in The Faculty of Education (2 years in control; 2.3 years telphone) are virtually identical for both groups of subjects. The mean age of the telephone group (25.1) is 3.2 years more than the mean age of the control group. A "t" test on the difference between the age means was clearly non-significant ($t=1.17$; d.f. = 15) and hence the two groups can be regarded as being comparable in age.

TABLE 1

Mean Number of Years at University, Mean Number of Years in The Faculty of Education, Mean Age and Sex of the Telephone Supervised and Control Groups of Student Teachers.

(N = 18)*

Group	Mean Years University	Mean Years in Education	Mean Age	Number of Male	Number of Female
Control	3.6	2	21.9	2	7
Telephone	3.7	2.3	25.1	2	7

* Data not available on one telephone S

THE TEACHING ASSIGNMENT OF THE STUDENT TEACHERS

The 19 Ss all were satisfying the requirements of a compulsory student teaching course in their B.Ed. program - Education Practicum 201 - through their participation in the present research project. All Ss while in the project satisfied the general requirements of this course. These requirements consisted of each S spending two days per week over a period of 5 consecutive weeks in an elementary school class and engaging in small group teaching. In addition, the Ss were required to undertake the specific assignment of teaching small groups of their elementary school students to make use of Landsat Satellite maps.

THE SUPERVISION OF THE STUDENT TEACHERS

CONTROL Ss

All control group Ss were supervised by the same faculty consultant once weekly in a minimum forty-five minute group session in each of the two schools in which they carried out their student teaching. Five supervision sessions were carried out in each of two schools over the five weeks of the project. It should be noted that the frequency and duration of supervision sessions exceeded that which is normally available to Education Practicum 201 students by a considerable margin.

All supervision sessions were tape recorded in order to obtain a complete record of what transpired for future analysis. In addition to focusing on the teaching of Landsat Satellite maps, the sessions dealt with a great variety of topics pertinent to beginning student teaching. Topics were introduced both by the faculty consultant and by the Ss, and handled in a variety of ways such as group discussion, unilateral presentation or questions and answers.

TELEPHONE Ss

The telephone Ss supervision was provided by the same Faculty Consultant who supervised the control group. The entire telephone group was supervised in one telephone conference hookup of a 45 to 60 minute duration held once weekly for each of the five consecutive weeks of the project. The telephone supervision was held on Thursday evenings with all participants in their respective homes. All supervision sessions were tape recorded by means of a telephone coupler equipped with the beeper required by law.

Supervision sessions were planned in advance at a weekly meeting between the faculty consultant and the research team. Planning focused primarily on the procedures to be employed in conducting the telephone supervision rather than on the topics to be dealt with - the latter overlapped considerably with the topics of the control group supervision. Typically, planning focused on correcting deficiencies noted in the preceding session and moving the Ss toward more interaction with each other and the faculty consultant over the phone.

As a result of planned changes from week to week, the five sessions differed to some degree. The modal features of the sessions were as follows. Initially, after extending greetings and outlining the plan for the evening, the faculty consultant would invite each S in turn to give a brief account of the highlights of experiences in the school that week. Faculty Consultants would respond in some way to each S's account and/or might invite other Ss to respond. If necessary the faculty consultant because of lack of response, would designate a particular S by name to respond.

Some time would always be allocated to Landsat teaching. Also a student or pair of students selected in the previous week would report on a particular topic such as how discipline is handled in their class or what is done with children with learning problems. Attempts were made by faculty consultants to promote group discussion on the presented topic. Time was devoted as well to dealing with problems which had arisen. As in the previous term, Ss who had problems which could not be brought up in conference were invited to telephone the faculty consultant immediately after the conference call was

terminated. The conference would terminate with the faculty consultant providing Ss with some goals for their forthcoming student teaching and for the supervision session of the next week.

The faculty consultant had some misgivings about the telephone Ss. She felt that she was giving more time to the control Ss since all ten telephone Ss were on the telephone for at least forty-five minutes, while the control Ss were split into two groups that had forty-five minutes for each group at their respective schools.

During this round, a tape of a telephone conference was given to the faculty consultant to allow her to hear what she sounded like. In addition she was asked to talk a bit less and let the student teachers do more talking. It was felt that each student should be asked to respond at least once during the conferencing session. It was also felt necessary to circumvent any one student from monopolizing the discussion.

A technical problem began to cause difficulty. There appeared to be a noticeable amount of background noise on the line. It sounded like household background noise, but the faculty consultant was unable to determine from whose telephone the noise was coming. This noise was recurrent for the duration of the project.

EVALUATION OF TELEPHONE SUPERVISION

The adequacy of telephone supervision was determined by comparing the telephone supervised Ss with the control Ss on two measures of their effectiveness as student teachers and on one measure designed to determine the Ss perceptions

of the usefulness and value of the supervision they had received. The two effectiveness measures consisted of an evaluation of overall performance of the Ss as student teachers carried out by the teachers in whose classes they were training (cooperating teachers), and of a measure of Landsat knowledge acquired by the pupils who were taught by the Ss in small groups. Ss' perceptions of their supervision were obtained by means of an evaluation questionnaire which the Ss completed anonymously at the end of their student teaching. The instruments measuring the three dependent variables are described in detail in the following sections.

INSTRUMENTS

Three instruments were used in this feasibility project: cooperating teacher evaluation form; student teacher questionnaire; pupil map questionnaire.

EVALUATION OF Ss BY THEIR COOPERATING TEACHER - THE C.T.E.F.

It is a standard form requiring qualitative evaluative comments by C.T. on each S under the heading of attendance, punctuality, attitude, preparation, relationship with pupils and general comments. (see Appendix A) The C.T.E.F.s were filled out by cooperating teachers at the completion of student teaching.

The completed forms were scrutinized by the research staff in order to identify some dimensions on the basis of which the Ss could be discriminated as to their degree of success in student teaching. It was determined that at most Ss could be separated into two groups - those who elicited from C.T.s evaluative comments which were consistently positive and those Ss whose

generally positive evaluations were qualified by a reservation expressed by the C.T. about some characteristic of S which would appear to be important in teaching. The most frequently occurring reservation took the form of, "when S acquires more experience he will be able to control the class better and will be a good teacher." The criterion for classifying an evaluation as being qualified by a reservation was that it contain a statement which explicitly or by implication attributed a deficiency to an S in some characteristic important to classroom teaching, and specified what characteristic S was deficient in.

Evaluations which were consistently positive were designated as Positives (P); Qualified evaluations were designated as Qualified Positives (Q.P.).

EVALUATION OF PUPIL ACHIEVEMENT IN LANDSAT MAP READING - THE PUPIL MAP QUESTIONNAIRE (P.M.Q.)

The P.M.Q. consists of 15 questions based on two Landsat satellite maps of Alberta which the pupils perused in responding to the questions. (See Appendix B). There are two distinct parts to the P.M.Q. One part, consisting of questions 5 to 11 inclusive having a total of 16 responses, requires the pupil tested to point to various features - e.g., find a lake. As the child pointed the examiner made a note as to whether the response was right or wrong. The other part of the P.M.Q. consisting of the remainder of the 15 questions permitted less objective scoring and tapped more general kinds of knowledge than the first set. In view of the differences between the two sets they were kept separate for purposes of analysis. The second set of questions, like the first, was scored as right or wrong.

The P.M.Q. was administered to 30 pupils taught by telephone supervised Ss and to 23 pupils taught by control Ss. The P.M.Q. was administered to each of these pupils individually by the faculty consultant who had carried out the supervision of the telephone and control Ss.

In this term, one of the principals assigned a subject student teacher to a grade three class for the Landsat map activities rather than to a grade four, five, or six class. In determining the comparisons of the children's knowledge of Landsat maps, the grade three children were excluded.

Ss EVALUATION OF THEIR METHOD OF SUPERVISION - THE SUPERVISION EVALUATION FORM (S.E.F.)

The Supervision Evaluation Form (S.E.F.) elicits ratings of 17 aspects of the supervision of student teaching provided to the Ss by the faculty consultant (see Appendix C). Fourteen of the items were rated on a 5 point scale (excellent through unsatisfactory). The three remaining items rated required a yes or no answer as a choice between alternatives. In addition, the S.E.F. directs the Ss to list the important advantages and disadvantages of the method of supervision they had received. The S.E.F. was completed by all Ss anonymously subsequent to their final supervisory experience.

The S.E.F. is thought of as sampling various facets of the supervisory experience, deemed to be important from the vantage point of supervisors, in facilitating performance of student teachers. Thus, the items deal with matters ranging from the usefulness of the method of supervision in providing feedback on performance in student teaching to its usefulness in stimulating more thought about student teaching. Content validation is the only method of validity determination applicable to the S.E.F. Content validity is assumed

on the basis of the method of construction of the form. This consisted of systematically delineating the functions that supervision is intended to serve, and then formulating items for the S.E.F. corresponding to each function.

Analysis of the results from the S.E.F. consisted of dichotomizing the five possible ratings for each facet into two categories. A rating of excellent, very good or good on any of the items was categorized as an expression of acceptance of that aspect of the supervision. A rating of fair or unsatisfactory was categorized as S reporting that aspect of his supervision deficient. Dichotomizing the ratings at the particular point on the continuum selected here was based on a priori and empirical considerations.

Results from the section of the S.E.F. eliciting information regarding perceived advantages and disadvantages of the supervision received, were tabulated in terms of the frequency of occurrence of various kinds of advantages and disadvantages expressed.

RESULTS

EVALUATION OF TELEPHONE AND CONTROL Ss by COOPERATING TEACHERS - C.T.E.F. RESULTS

Table 2 shows the frequency of consistently positive (P) and qualified positive (Q.P.) ratings of Ss of the telephone and control groups. It can be seen that the frequency of P ratings is higher in the telephone group. Nine of ten telephone Ss received a P rating whereas only three of nine control Ss received a P rating. A chi-square test showed this difference to be significant at less than the .05 level ($X^2 = 4.33$, d.f. - 1). Hence, one can conclude that

the telephone group did receive better global evaluations from their cooperating teacher than did control group Ss.

TABLE 2

Frequency of Positive (P) and Qualified Positive (Q.P.) Ratings on C.T.E.F. for Telephone and Control Ss Respectively

(n = 19)

Rating	Group: Telephone	Group: Control
Positive	9	3
Qualified Positive	1	6

$X^2 = 4.33$, d.f. = 1

$P < .05$

Since Ss were assigned randomly to the telephone and control groups it can be assumed that the difference in cooperating teacher evaluations probably does not merely reflect a pre-existing difference in the two groups of Ss, but rather that it reflects a difference in conditions associated with student teaching for the two groups. While method of supervision is one known and clear difference between the groups, there may be others as well, which cannot be ruled out at this time as having produced the difference in overall cooperating teacher evaluation of the two groups. At the very least,

on the basis of the association of better evaluations with the telephone condition, it can be concluded that telephone supervision would not appear to be poorer than traditional supervision in terms of its impact on student teacher effectiveness as assessed by cooperating teachers.

It can be argued, of course, that the difference in supervision had no causal relation to the difference in evaluation because these data do not demonstrate that any form of supervision makes for greater effectiveness in student teachers than no supervision at all. This argument cannot be refuted by the present data because an unsupervised control group was not included for two reasons---first of all, because of general apprehension of this kind of arrangement and secondly, because the newness of the Landsat material to both student teachers and cooperating teachers appeared to require the availability of somebody in a supervisory capacity to monitor the student teachers' Landsat map teaching activities.

The next section of results bearing on student teacher effectiveness in Landsat teaching would appear to reflect more directly the impact of differences in supervision because of the more critical role of supervision in relation to the teaching of novel Landsat material by the Ss.

EVALUATION OF TEACHING EFFECTIVENESS OF STUDENT TEACHERS - PUPIL MAP QUESTIONNAIRE (P.M.Q.) RESULTS

Tables 3 and 4 compare the knowledge about Landsat maps of pupils taught by telephone supervised Ss with the knowledge of pupils taught by control Ss. Table 3 shows that the pupils of telephone Ss obtained a higher mean

score on the 16 item section (12.9 vs. 11.87) requiring them to point out specific locations on winter and summer Landsat Maps. This difference between menas would actually be statistically significant at the .05 level on a one tail "t" test. On the appropriate two tail test (since direction of difference was not predicted) "t" approaches significance ($<.10$ level).

TABLE 3

Mean Number Correct and S.D.s on 16 Locating Feature Questions on P.M.Q. for Elementary School Pupils Taught Landsat by Telephone and Control Ss Respectively

(N = 53 Pupils)

	Pupils of	
	Telephone Ss	Control Ss
$\bar{X}$	12.9	11.87
S.D.	1.87	2.11

$t = 1.68$; d.f. = 51

$P < .10$ (two tail test)

Table 4 shows that the pupils of the two groups of Ss achieved at virtually identical levels on the seven general P.M.Q. questions (pupils of telephone Ss - 6.14; pupils of controls 6.21). The high means suggest that both groups may

have attained their ceilings on this kind of test of Landsat knowledge. The "t" test on the difference between these means was clearly non-significant ("t" = .244).

TABLE 4

Mean Number Correct and S.D.s on 7 General Questions on P.M.Q. for Elementary School Pupils Taught Landsat by Telephone and Control Ss Respectively

(N = 51 Pupils)

	Pupils of Telephone Ss	Controls
$\bar{X}$	6.14	6.21
S.D.	.901	1.099

t = .244, d.f. = 49

N.S. (of two tailed test)

The results on Landsat map knowledge would clearly support the hypothesis that telephone supervision of student teachers is clearly not associated with a lesser degree of teaching effectiveness in student teachers. On the contrary, in view of the near significant "t", telephone supervision may be associated with a higher degree of teaching effectiveness. The near significant result

in table 3 would be insufficient by itself to confirm the hypothesis that the telephone Ss were better teachers. However this near significant result becomes evidence in support of this hypothesis in the light of the already reported superior evaluations (table 1) of the telephone group as student teachers on the C.T.E.F., a measure which is completely independent of the P.M.Q. The better overall performance of the telephone Ss as assessed by cooperating teachers on the C.T.E.F. make it more credible that they may have taught Landsat more effectively as well.

Even if it is accepted that the data are sufficient to support the hypothesis that there is an association between telephone supervision and more effective student teaching, the question still remains whether this association reflects a causal relationship. It was indicated earlier that since adequate supervision of student teachers may be a necessary condition in relation to effective teaching of Landsat to pupils that the better performance of the pupils of the telephone Ss provides more direct support than was available hitherto that the telephone mode of supervision may be contributing more to student teacher effectiveness than the control mode.

Clearly the results on both the C.T.E.F. and the P.M.Q. can be explained by means of alternative hypotheses which cannot be ruled out at this time. Hence, the conservative conclusion would appear to be that a new mode of student teacher supervision has been tried. It has not been found to be inferior; indeed, there are some indications it may be better in terms of student teacher performance than the standard face to face mode of supervision.

Ss EVALUATION OF THEIR METHOD OF SUPERVISION - THE SUPERVISION EVALUATION FORM (S.E.F.) RESULTS.

Table 5 presents the results of the comparison of the responses of the telephone and control Ss to the Supervision Evaluation Form (S.E.F.). Clearly, there are readily discernible differences between the telephone and control Ss in their acceptance of their respective methods of supervision. Thus, on item 14 of the S.E.F. on which Ss recorded their overall ratings of their method of supervision all eight control Ss expressed acceptance (ratings of excellent, very good, or good) of face to face supervision whereas only one of nine telephone Ss expressed overall acceptance of this method of supervision. Chi Square on this item of 10.2 is highly significant at almost the .001 level. This difference in overall rating is consistent with significant differences between the Ss on five of the 13 items indexing specific aspects of the supervisory experience. (Items 1, 2, 3, 4,and 11). (See Table 5, p. 24)

Responses of the Ss shown in Table 6 to the last three questions of the S.E.F. (15, 16, 17 - appendix C) constitute additional relevant data. The responses to these questions provide further indication that the telephone Ss were not pleased with their method of supervision, whereas the control group was satisfied with face to face supervision. This is seen readily from responses to questions 15 and 16. Only two of nine telephone Ss report their method of supervision to be acceptable, and only one of nine would select telephone supervision, if given a choice. Responses to question 17 indicate that even if a choice had to be made between telephone supervision available once weekly versus face to face supervision available only once or twice every five weeks, seven of nine telephone Ss would prefer face to face supervision. (see Table 6, p. 25).

TABLE 5

A Comparison by Means of Chi-Square of the Frequency of Ratings of Acceptable (a) and Unacceptable (u) of 14 Aspects of Supervision Received, by Telephone and Control Ss

(n = 17)*

	Telephone Ss		Control Sss			
Aspects Method of Supervision	A	U	A	U	X^2	P
1. Obtaining feedback on performance	1	8	7**	0	9.14	< .01
2. Receiving direction	3	6	8	0	6.58	< .02
3. Receiving psychological support	2	7	7	1	4.86	< .05
4. Receiving help with problems	3	6	8	0	5.58	< .02
5. Stimulating thought	3	6	7	1	3.14	NS
6. Obtaining new ideas	5	4	7	1	.83	NS
7. Convenience of supervision	4	5	6	2	.62	NS
8. Facilitating "on topic" discussion	6	3	7	1	.05	NS
9. Permitting physical comfort	5	3	8	0	1.64	NS
10. Providing comfort with others	4	4	8	0	3.0	NS
11. Facilitating interaction with others	3	6	8	0	5.58	< .02
12. Facilitating learning from others	5	4	8	0	1.64	NS
13. Facilitating learning about Landsat	4	5	7	1	1.8	NS
14. Overall rating of supervision	1	8	8	0	10.1	< .01

* 1 control and 1 Telephone S did not submit their S.E.F. forms.

** item omitted by 1 S.

TABLE 6

Frequency of Directly Expressed Preferences of Telephone and Control Ss for Telephone or Face to Face Supervision

Summary of S.E.F. Question	Telephone Ss		Control Ss	
	Yes	No	Yes	No
15. Would your present method of supervision be acceptable on continuing this practicum?	2	7	8	0
16. If you had a choice of method of supervision, would you choose your present method?	1	8	8	0
17. If telephone supervision could be made available much more frequently than face to face, would you choose telephone rather than face to face.	2	7	2*	5

* 1 S did not respond to this item.

It should be noted as well that some telephone Ss, although a small minority, (two of nine) find telephone supervision acceptable; and one of eight telephone Ss would actually prefer it. Furthermore, four of the total number of 17 Ss who responded (25%) would opt for telephone supervision if it could be made available more frequently than face to face supervision. These last results suggest that even if telephone supervision is not improved with respect to the satisfaction it provides it may none the less be acceptable, under certain conditions, to a substantial minority of student teachers.

Data relating to the reasons for dissatisfaction with the telephone are available from the responses to the 17 items of S.E.F. already reported on, and from the last section of the S.E.F. where Ss were asked to list three advantages and three disadvantages of their method of supervision.

One important clue to the reasons for dissatisfaction with telephone supervision is possibly provided by the responses of the control Ss to item 17 of the S.E.F. and to the section of the S.E.F. dealing with advantages and disadvantages. In item 17 most control Ss (five of seven) reject the telephone as a method of supervision even when the alternative is very infrequent face to face supervision. In responding to the section of the S.E.F. where three advantages of the supervision received are listed, five of the control Ss refer to the disadvantages of telephone supervision although this section of the S.E.F. did not require that they contrast their method with telephone supervision. Thus one control S noted "It would be an unpleasant ordeal to sit with an ear to the phone for 45 minutes."

These negative references to telephone supervision by control Ss seem

remarkable since the control Ss did not experience telephone supervision, or contact with the telephone Ss.

These negative references suggest that the control Ss may have pre-conceived negative attitudes toward telephone supervision. This may have been true of many of the telephone Ss as well, at the beginning of the project. A part of the reason for their negative responses to the S.E.F. may stem from the lack of awareness of the research team of this and from the failure to attempt to deal with it. One telephone S partially confirms this suspicion in her listing under the heading of disadvantages, that she "didn't like being put into this (telephone supervision) without being asked."

Most of the reasons for the dissatisfaction with telephone supervision presumably have to do with what happened or failed to happen on the telephone conference calls. The items on the S.E.F. which significantly discriminated between telephone and control Ss provide some relevant information. The significant difference on item 11 suggests that telephone Ss perceived a deficiency in interaction with other Ss during supervision. The significant differences on items one to four inclusive suggest that the supervision was not sufficiently individualized in that it didn't provide adequately for the individual needs of the telephone Ss in relation to student teaching. That these were important problem areas is amply confirmed by the responses of telephone Ss to the S.E.F. under the heading of disadvantages. Thus, two Ss refer directly to this problem - one stating that she would withold asking about things that really bothered her because of not wanting to tie up the phone; another stated that there was time to raise questions but not enough time

to get the answers. Three other Ss complained of the monopolizing of conversations by a few people, and one of these Ss added that after 3/4 hour of this, you forget your own problem.

Other reasons for dissatisfactior included one expressed frequently and a few others expressed only once by one individual. The former was frequent reference to related themes such as the "impersonal" nature of contact over the phone, the lack of "direct" contact "it's nice to sit next to someone and ask them how it's going", "would be nice to see people", etc.

Complaints expressed no more than once by a single person included - the time of the call was bad; and the home phone was needed for business and, therefore, other family members were upset by the weekly supervisions.

It should be noted that the telephone and control Ss were not discriminated on a majority of the S.E.F. specific items and that these S.E.F. items had to do with important objectives of supervision such as learning about Landsat (13), learning from others (12), obtaining new ideas (6), being stimulated to think (5). While telephone supervision did not always receive the endorsement of even a majority of telephone Ss on even these items, the degree of endorsement of these items can perhaps be regarded as remarkable in view of the high probability of the influence of a strong negative halo effect in responding to the S.E.F. One can therefore venture the hypothesis that even from the vantage point of the participating Ss, telephone supervision was functional with regard to the imparting of information which is of importance to student teachers in general, even though it succeeded less well in responding to individual needs.

Also, even from the vantage point of the Ss, telephone supervision was acknowledged to be convenient as evidenced by the fact that a majority of the responding telephone Ss listed this as an advantage.

CONCLUSIONS

The data appear to support the hypotheses that the student teachers supervised by telephone conferencing would be rated as well or better than those supervised in face to face meetings with their faculty consultant, and that the pupils taught by the telephone supervised group would do as well or better than the non-telephone group's pupils regarding the reading of Landsat maps.

In examining these data it should be noted that the face to face group was in two schools, thus giving each other greater peer support. The telephone group was usually limited to a maximum of forty-five minutes per week of interaction with their faculty consultant. The face to face group on the other hand, had in excess of this time since two sessions were held for them: one at each school. In addition, the face to face group was not subject to the stringent time limitation applied to the telephone group.

The performance of the telephone group appeared to be somewhat superior to the face to face group on the C.T.E.F., and their pupils also appeared to be somewhat better than the face to face group, although in the second case it was not significant.

The telephone group, however, reported much dissatisfaction with the

telephone supervision ranging from inconvenience of time to preventing others in their residence from using the telephone. Some similar negative items regarding telephone conferencing at Open University, London were found in the literature (Williams). Thus, the negative aspects of this procedure must be carefully considered, including the effect of the person conduting the conferencing on the participants. This latter element includes both the way in which the conducting person deals with the conferees, which might be a function of personality, and the procedures used to conduct the conference.

It is suggested that more positive feelings toward telephone conferencing might be generated by reducing the number of participants on line in order to allow more individual participation, limiting the time that each participant might speak, and providing a brief training session for conference conductors.

The potential of one way video used in conjunction with two way telephone communication might help to overcome feelings of impersonalness, by allowing the students to see their faculty consultant during the conference. Such a procedure will become viable upon the launching of the Anik B satellite.

The use of two way telephone conferencing as utilized in this project appears to be an effective way to supervise student teachers in ED PRA 201, but is subject to student dissatisfaction.

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APPENDIX A

ED. PR. 201 — STUDENT'S PROGRESS REPORT
(SEE DIRECTIONS ON REVERSE SIDE)

DATE ..... (Day) (Month) (Year)

STUDENT TEACHER ..... FACULTY CONSULTANT .....
SCHOOL ..... COOPERATING TEACHER .....
ATTENDANCE: .....

PUNCTUALITY: .....

ATTITUDE: .....

PREPARATION: .....

RELATIONSHIP WITH PUPILS: .....

GENERAL COMMENTS: .....

(DIVISION OF FIELD EXPERIENCE'S COPY)
(C4031)

..... Signature of Cooperating Teacher

APPENDIX B

PUPIL MAP QUESTIONNAIRE

1. What are these? (Pointing to both Landst maps)
2. How were they made?
3. What are the differences between these two maps?
4. Can you tell if there are any growing plants or trees on these maps? How?
5. Can you find a like on both of these maps?
6. Can you find a river on both of these maps?
7. Can you find a road on both of these maps?
8. Can you find any clouds on both of these maps?
9. Can you find any farm land on both of these maps?
10. Can you find a town or city on both of these maps?
11. Can you find mountains on both of these maps?
12. Here is a regular map of the land shown by the Landsat map. Find the city of Calgary on this map. Now find Calgary on a Landsat map.
13. What could people use these maps for?
14. Can you tell me anything else you know about these maps?
15. What else would you like to learn about these maps?

APPENDIX C

Evaluation of Method of Supervision of Practicum by Your Faculty Consultant

Do Not Write Your Name. This form will be removed from your folder and no attempt will be made to identify you.

In your present practicum placement you were supervised by your Faculty Consultant either by means of a telephone conference hookup or in a face to face group situation. We would like to compare the advantages and disadvantages of these two methods of supervision. Therefore, please identify the advantages and disadvantages of the method of supervision you received by responding to the following. In responding, try to focus on features of the supervision produced by the method, and try to ignore features of the supervision produced by the style of the Faculty Consultant herself.

I. Check one or fill in the blank.

1. I was supervised: by telephone_____
   in face to face group_____

2. Of the five supervision sessions, I participated in

   1_____2_____3_____4_____5_____

3. School I was at for practicum _____.

4. Grade Level I was at_____.

5. How many years of University have you had (including this year)?_____

6. How many years have you had in the Faculty of Education (including this year)?_____

7. How old are you?_____

II. Please rate your method of supervision for each of the following qualities by underlining one of the following 5 ratings for each.

E = Excellent V.G. = Very Good G = Good
F = Fair U = Unsatisfactory

1. In terms of making it possible for you to obtain feedback on how you were doing in your practicum, your method of supervision was

   E V.G. G. F U

2. In terms of enabling you to receive direction as to what to do, or how to do it, your method of supervision was

   E V.G. G F U

3. In terms of providing you with psychological support for the challenge of your practicum, your method of supervision was

   E V.G. G F U

4. In terms of providing you with an opportunity to talk about and receive some help with problems you have encountered in your practicum, your method of supervision was

   E V.G. G F U

5. 5. In terms of stimulating you to think more about your practicum experience, your method of supervision was

   E V.G. G F U

6. In terms of giving you new ideas which you may not have come by otherwise, your method of supervision was

   E V.G. G F U

7. In terms of convenience your method of supervision was

   E V.G. G F

8. In terms of enabling your group to stick to the subject under discussion without getting off topic excessively, your method of supervision was

   E V.G. G F U

9. In terms of your physical comfort your method of supervision was

   E V.G. G F U

10. In terms of permitting you to feel comfortable with other people, your method of supervision was

    E V.G. G F U

11. In terms of permitting you to interact with other people, your method of supervision was

    E V.G. G F U

12. In terms of permitting you to learn from other students your method of supervision was

    E V.G. G F U

13. In terms of facilitating your learning about landsat your method of supervision was

    E V.G. G F U

14. Your overall rating of your method of supervision is that it was

E V.G. G F U

15. If you were to continue this practicum would you find your present method of supervision acceptable?

Yes No

16. If you were to continue this practicum and had a choice in method of supervision between face to face and telephone, would you choose

telephone_____ or face to face_____

17. If you had to choose between telephone supervision once each week or a face to face supervision available only once or twice every 5 weeks which would you choose?

telephone_____ face to face_____

III. Please list and briefly explain the important advantages and disadvantages of the method of instruction you have received. Use extra paper if necessary.

Advantages	Disadvantages
1.	1.
2.	2.
3.	3.

Thank you very much for your cooperation